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(54) Toner Feeding Device
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Specifications

Title of the Invention

Toner Feeding Device

Scope of Claims for Utility Model Registration

A toner feeding device, wherein an intake opening and an exhaust opening are provided in an hermetically-sealed toner box implemented in copying machines, printers and the like, a vacuum pump for suctioning toner within a toner bottle and air into the toner box is provided on one outer side of the toner box, and a filter for separating the air from the toner and expelling only the air outside of the box is provided on the exhaust opening side.

Detailed Description of the Invention

(Applicable Industrial Field)

The present invention relates to a toner feeding device.

(Related Art)

In copying machines and printers using toner in the developer, there are instanced wherein the toner is scattered and soils the interior and exterior of the machine, the operator's hands, and the like when feeding the toner from a toner bottle

When feeding toner, this toner feeding device inserts the end of the air aspiration pipe 6 into the toner bottle 7, operates the vacuum pump 4, and aspirates the toner 8 within the toner bottle 7 into the toner box 1 by the negative-pressure created by this vacuum pump 4. Then, this air is separated from the toner 8 by the filter 5 and expelled outside from the exhaust opening 3, leaving only the toner 8.

The present invention prevents the scattering of toner during feeding in the method described above.

FIG. 2 is another embodiment of the present invention.

This embodiment was proposed to improve maintenance compared to the foregoing first embodiment.

Therefore, the air aspiration pipe 6 is directly connected to the intake opening 2-side of the toner box 1 and the vacuum pump 4 is provided outside of the filter 5 on the exhaust opening 3-side.

Furthermore, as another embodiment of the present invention, an automatic feeding of the toner to the toner box 1 can be considered. In this case, a sensor for detecting toner amount is placed within the toner box and is electrically connected to a controller of the driving part of the vacuum pump. In this way, long-term toner feeding is possible by placing a large capacity toner bottle 7 within or outside of the machine.

(Effects of the Invention)

As described above, the present invention provides a vacuum pump 4 for aspirating toner and air together into the toner box 1 by negative-pressure and a filter 5 for separating this air from the toner and expelling it outside of the box 1 on the exterior of the toner box 1.

Therefore, since this device has few design limitations regarding the developer agent unit containing the toner box 1 and the configuration thereof is simple, operations such as the exchange of parts during production, routine inspection, and in the event of failure can be facilitated and costs can be reduced.

In addition, since increase of amount of toner and enhancement of transportability are possible and the scattering of toner when feeding the toner can be sufficiently prevented, the reliability and operability of the copying machines, printers and the like using this device can be further enhanced.

Brief Description of the Drawings

FIG. 1 is a configuration diagram showing one embodiment of the toner-feeding device of the present invention. FIG. 2 is a configuration diagram showing another embodiment of the same.

1 TONER BOX

⑲日本国特許庁（JP）　⑪実用新案出願公開

⑫公開実用新案公報（U）　昭64－17550

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G 03 G 15/08	112	8807－2H	

審査請求　未請求　（全1頁）

⑤4考案の名称　トナー補給装置

⑳実　願　昭62－112351
㉒出　願　昭62(1987)7月22日

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⑤7実用新案登録請求の範囲

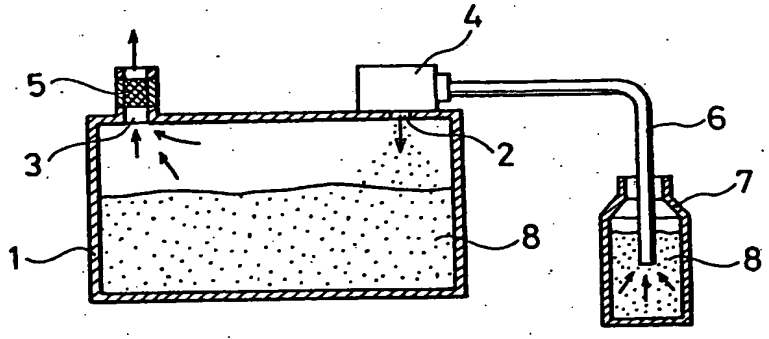
複写機、プリンタなどに用いるトナーボックスにおいて、密閉状のトナーボックスに吸気口と排気口とを設け、その一方の外側にはトナーボトル内のトナーをエアと共にトナーボックス内に吸引するためのバキュームポンプを配備し、排気口側には前記エアだけをトナーと分離してボックス外に排気するためのフイルタを配置したことを特徴とするトナー補給装置。

図面の簡単な説明

第1図は本考案のトナー補給装置の一実施例を示す構成図、第2図は同、他の実施例を示す構成図である。

1……トナーボックス、2……吸気口、3……排気口、4……バキュームポンプ、5……フイルタ、6……エア吸引パイプ、7……トナーボトル。

第1図



第2図